

that birds seldom vary on account of the season more than six days either way from their average date of arrival. An example will show how this limit of six days is employed. The Hooded Warbler has been reported as arriving at Washington, D. C., on the following dates during fifteen different years: April 19, 26, 27, 27, 29, 29, 30, May 1, 1, 3, 6, 8, 9, 10, 12. The average of these fifteen dates as they stand is May 2. The first rejection drops April 19 as too early, and May 9, 10, and 12 as too late. The average of the remaining dates is May 1. It is now seen that May 8, should also be discarded. The average of the ten dates left is April 30. This date of April 30 is considered as the "probable normal date of arrival," so far as our records stand at the present time, and is published as the "average date of spring arrival" based on ten years' records.

How near this date is to the truth can be surmised from the amount of variation in the records. The differences between each of the ten dates used and April 30 is, in days, as follows; 4, 3, 3, 1, 1, 0, 1, 1, 3, 6—a total of 23, which divided by ten gives 2.3 days as the probable error; *i. e.*, it is probable that the date April 30 is within 2.3 days of correct. The greater the number of observations and the closer these are in agreement, the smaller will be the probable error. Thus in the case of the White-eyed Vireo at Washington, D. C., the earliest dates of arrival for twenty-two years are: April 18, 18, 19, 19, 20, 21, 21, 22, 22, 22, 22, 23, 23, 23, 24, 24, 24, 25, 25, 26, 26, 26—average, April 23; average variation from this date, 2.1 days. The most uniform record we have in all our four hundred thousand notes on bird migration is that of the Chimney Swift at New Market, Va. The dates of arrival are: April 10, 11, 11, 12, 12, 12, 12, 14, 14, 14, 15, 15, 15, 16, 16, 16, 16, 16, 16. Average, April 14; average variation, 1.7 days. This indicates that if the record was extended indefinitely, to a hundred years or more, the probability is that the average date finally obtained would not vary more than 1.7 days from April 14.—WELLS W. COOKE, *Biological Survey, Washington, D. C.*

Ontario Bird Notes.—BRÜNNICH'S MURRE. A flight of Brünnich's Murre (*Uria lomvia*) appeared at Toronto on November 29, 1907, and for several days dead birds were picked up on the shores of Lake Ontario. They were reported in the Niagara River below the Falls and in Lake Erie on December 1, and in the Detroit River on the 4th and individuals were picked up at Woodstock, Strathroy, and other inland points in southwestern Ontario. All the birds examined had empty stomachs as has been the case in all previous migrations.

GANNET. A young Gannet (*Sula bassana*) was picked up dead, about the last week of November, 1907, by Mr. Joseph Gilmore, on his farm in the township of Wainfleet, ten miles southwest of Welland, Ont., and several miles from Lake Erie. The bird was in bad condition when found and had lost a leg, but it was preserved and is in the possession of Mr. Gilmore. Mr. Jos. S. Wallace was the first to recognize the bird and I am indebted to him for the record and photographs of the specimen.

MIGRATION OF HORNED OWLS. The winter of 1907-'08 was marked in southern Ontario by the presence of great numbers of Horned Owls; I examined twenty-four between October 31 and February 26, and as far as I was able to distinguish between them, the resident form of *Bubo virginianus* was not present, and did not appear till the second week of April, some time after the migration had ceased. The first November birds were light Arctic Horned Owls (*Bubo virginianus arcticus*), followed by others not so white, and several dark Labrador Horned Owls (*Bubo virginianus heteroenemis*). All winter the dark birds were the rarer, and the majority of the owls examined were not referable to either of the three forms, but were closer to *arcticus* than to *virginianus*, most of them having decided black and white markings and white feet. A very light male was taken at Toronto November 1, 1907, and a very dark one November 26.

GRINNELL'S WATER-THRUSH. I have in my collection three skins of Grinnell's Water-Thrush (*Seiurus noveboracensis notabilis*) taken at Toronto in May, 1897, a male and female taken on the 4th by Mr. J. Hughes Samuel and a male taken on the 7th by myself, all three from the vicinity of Ashbridge's Bay. While Ontario water-thrushes are probably intermediate between the eastern and western forms, the typical western bird has not been recorded before from Ontario.

PHILADELPHIA VIREO. A skin of the Philadelphia Vireo (*Vireo philadelphicus*) in my collection is of interest from the fact that the wings have each a bastard primary of about half the length usual in the Warbling Vireo, and while the case is not unique, it is rare enough to record. The bird was taken by Mr. J. Hughes Samuel at Toronto, September 2, 1899.—JAMES H. FLEMING, *Toronto, Ont.*